

Department of Transportation
Olympia, Washington 98504

May 18, 2011

ATTENTION: All Bidders and Planholders

**I-90
SNOWSHED TO KEECHELUS DAM PHASE 1C-
REPLACE SNOWSHED AND ADD LANES
10Y018
STATE PROJECT**

Addendum No. 3

The Special Provisions, Plans, and Proposal for this project are amended as follows:

Special Provisions

1. In Addendum No. 1, Item 9 is revised to read as follows:

I-90, MP 62.14 to MP 67.30 Eastbound/Westbound
A WSDOT pavement repair project – Summer 2011

2. In Addendum No. 1, Item 17 is revised to read as follows:

10. Begin culvert extensions at Resort Creek and the construction of
~~[bridges at]~~ Unnamed Creek at MP 59.7 Br. EB and Unnamed Creek
at MP 59.7 Br. WB.

3. In Addendum No. 1, Item 19 is revised to read as follows:

10. Complete culvert extensions at Resort Creek and the construction of
~~[bridges at]~~ Unnamed Creek at MP 59.7 Br. EB and Unnamed Creek
at MP 59.7 Br. WB. as shown in the Plans.

4. In Addendum No. 1, Item 152 is revised to read as follows:

(***)**

Streambed Aggregate

This work shall also consist of furnishing and placing streambed aggregates of type specified at the locations and in conformity with the lines and dimensions shown in the Plans or established by the Engineer. This work shall include the construction of the Stream Transitions at Resort Creek and Upper Resort Creek. All costs in connection with the construction of the Stream Transitions shall be included in the applicable items of work.

5. On Page 128, lines 35 through 45 are revised to read as follows:

I-90, MP 52.00 to MP 55.15 ~~[54.00]~~

Yellowstone Road to Hyak Phase 1D – Stormwater Retrofit
A WSDOT stormwater retrofit project – Summer 2014

I-90, MP 55.10 to MP 58.08 [~~59.90~~]
Hyak to Keechelus Dam Phase 1E – Roadside Restoration
A WSDOT revegetation and restoration project – Summer 2015

I-90, MP 55.10 to MP 58.08 [~~59.90~~]
Hyak to Keechelus Dam Phase 1F – Fencing
A WSDOT wildlife fencing project – Summer 2016

6. On Page 128, the following is added after line 49:

I-90, MP 59.49 to MP 60.90
A WSDOT roadway reconstruction/widening project – 2013 through 2014

7. On Page 145, lines 22 through 28 are revised to read as follows:

During the placement of girders associated with Spans 1, 2, 3, 7, and 8 [~~and 9~~] of Slide Curve Bridge, the Contractor will be allowed 7 working days to close three lanes and have 1 lane open with alternating traffic during the hours listed below. The Contractor is advised that placing girders for Slide Curve Bridge will be difficult work. The work zone footprint is limited and alternative methods of construction for placing the girders may be required such as launching the girders from the work zone between the bridge and detour traffic. The temporary traffic control shall be in accordance with the Traffic Control Plan Sheets. The Contractor shall begin placing temporary traffic control for girder placement no earlier than the listed starting times, and shall have this temporary traffic control removed by the listed ending time for each closure period.

8. On Page 146, the following is added after line 11:

The Contractor shall coordinate the temporary closures for blasting with the I-90 Hyak to Snowshed Vicinity Phase 1B – Add Lanes and Bridges (I-90 Phase 1B) contractor. For any night that both the Contractor and the I-90 Phase 1B contractor will be closing lanes for blasting, the Contractor shall begin and end temporary lane closures for blasting at the same time that the I-90 Phase 1B contractor begins and ends temporary lane closures for blasting. The maximum allowed closure time shall not be exceeded. All costs associated with the coordination effort, with any delays due to the requirement to coordinate the work with the I-90 Phase 1B contractor, and with any failures of the coordination effort shall be borne by the Contractor.

9. On Page 153, the following is added after line 1:

Upper Resort Creek Site and Resort Creek Mitigation Site

The Upper Resort Cr. Culvert Repl. shall be installed and the Upper Resort Creek channel work completed prior to the re-channelization of Resort Creek beneath Resort Creek Br. WB and Resort Creek Br. EB.

10. On Page 155, lines 2 through 6 are revised to read as follows:

3. Construct detour alignments DE11 and DW11 and channelize existing traffic into the configuration shown in the Plans. Construct the AR6 Work Bench and associated soil nail wall, and begin ~~[Begin]~~ construction of the AR1 Work Bench ~~[and AR6 Work Benches]~~ and associated soil nail walls (See the Detour Plan – Stage 1 sheets). The DE11 and DW11 alignments shall be in place prior to construction of the work benches.

11. On Page 155, lines 34 through 36 are revised to read as follows:

12. After receiving the Engineer's approval of the Snow Net working drawings and completion of rock slope scaling in the vicinity of the Snow Net installation areas, begin installing Snow Net anchors along Slide Curve, Bald Knob, and East Shed Minus One.

12. On Page 156, lines 2 through 3 are revised to read as follows:

2. Finish construction of the AR1 Work Bench ~~[and AR6 Work Benches]~~ and associated soil nail walls.

13. On Page 156, lines 9 through 10 are revised to read as follows:

5. Finish ~~[Continue]~~ construction of Lake Keechelus Snowshed Repl. Pier 2 shafts, Pier 2 portal tower shafts ~~[towers, transformer vault building]~~, and shafts for generator room.

14. On Page 156, lines 12 through 13 are revised to read as follows:

6. Begin construction of Pier 2 portal towers, and complete ~~[Complete]~~ construction of Lake Keechelus Snowshed Repl. Pier 2, with associated wall and generator room, and Slide Curve Bridge substructure by the end of Season 2.

15. On Page 157, lines 5 through 7 are revised to read as follows:

3. The construction of Lake Keechelus Snowshed Repl. Pier 2, generator, and transformer vault building ~~[and associated towers and wall with integrated drainage and utility structures]~~ shall be finished.

16. On Page 158, lines 12 through 14 are revised to read as follows:

6. The construction of Lake Keechelus Snowshed Repl. Pier 1 and communication rooms ~~[, associated walls and towers, communication~~

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~~rooms, mechanical rooms, and water tank~~] shall be completed after detours DE13 and DW13 are in place.

17. On Page 158, lines 50 through 52 are revised to read as follows:

3. The construction of Lake Keechelus Snowshed Repl. superstructure, plenum, mechanical rooms, water tank, Pier 1 portal towers, portal trusses, mechanical, electrical, and fire/life safety systems shall begin after detours DE14 and DW14 are in place. Complete the construction of Pier 2 portal towers.

18. On Page 159, lines 48 through 49 are revised to read as follows:

4. Lake Keechelus Snowshed Repl. and associated systems and walls shall be completed after detours DE15 and DW15 are in place.

19. On Page 166, the following is added after line 8:

*** Conc. Class 4000 for Concrete Block *** *** 1.00 gal/cy ***

20. On Page 166, the following is added after line 28:

*** St. Reinf. Bar for Concrete Anchor Block *** *** 0.02 gal/Lb ***

21. On Page 188, lines 24 through 25 are revised to read as follows:

The Contractor shall remove existing Bridge *** No. 90/110N (Lake Keechelus Snowshed) *** after routing traffic onto *** DW13 Line ~~[Detour alignment]~~ ***.

22. On Page 195, lines 3 through 7 are revised to read as follows:

Roadway Excavation Incl. Haul - Area A and Roadway Excavation Incl. Haul - Area B include HMA and cement concrete pavement removal within the excavation area, but they do not include the portion of the HMA pavement removal and cement concrete pavement removal ~~[collectively]~~ called out in the Detour Align / Site Prep Plans, respectively, as PLANING BITUMINOUS PAVEMENT AND UNDERLYING MATERIAL and REMOVING CEMENT CONC. PAVEMENT [ROADWAY REMOVAL].

23. On Page 197, lines 10 through 16 are revised to read as follows:

7. The Engineer will mark the locations for the pattern and provisional (spot) reinforcement, but these locations will not be marked on the upper half of the lift until 12 feet of exposed face has been scaled and dressed in accordance with Item 2, **Scaling and Dressing**, in this Section of the Standard Specifications. Pattern reinforcement consists of installed pattern rock dowels and provisional reinforcement consists of installed spot rock dowels and spot rock bolts. The Contractor shall

be responsible for providing access for stabilization equipment on the 12 foot exposed lift at no cost to the Contracting Agency.

24. On Page 197, lines 22 through 28 are revised to read as follows:

9. The retained muck shall not be removed from the lower half of the 24-foot lift until the grout has achieved 60 percent of the 7-day strength and all the required proof testing has been approved for all required pattern rock dowels, spot rock dowels, and spot rock bolts in the upper half of the lift. ~~[If no testing is required, the muck shall not be removed from the lower half of the 24-foot lift until the grout has achieved 60 percent of the 7-day strength, equivalent to 2400 psi.]~~

25. On Page 197, lines 30 through 36 are revised to read as follows:

10. The Engineer will mark the reinforcement locations on the lower half of the lift after the retained muck is removed from the lift and the slope has been scaled and dressed in accordance with Item 2, **Scaling and Dressing**, in this Section of the Standard Specifications. After the reinforcement locations are marked, the Contractor shall install the pattern and provisional (spot) rock dowels and rock bolts on the lower half of the 24-foot lift. The Contractor shall be responsible for providing access for stabilization equipment on the 12 foot exposed lift at no cost to the Contracting Agency.

26. On Page 199, lines 33 through 38 are revised to read as follows:

The slope stability analysis including calculations shall be performed by either a registered civil engineering or engineering geologist consultant, who is a recognized geotechnical expert in the field of slope stability investigation and analysis with a minimum of 10 years of demonstrated geotechnical specialty experience. The Contractor shall submit the name, qualifications, and detailed summary of experience of the consulting geotechnical specialist ~~[consulting engineer]~~ for approval.

27. On Page 202, lines 27 through 28 are deleted and replaced with the following:

- i) A blast monitoring plan as described in the **Blasting Monitoring Plan and Blast Monitoring Minimum Requirements** subsection of this Special Provision.

28. On Page 202, lines 35 through 40 are revised to read as follows:

A blast-specific blasting plan shall be submitted for approval not less than 72 hours prior to commencing the drilling of the pattern for the proposed blast plan ~~[each blast]~~. If the approved blast needs to be delayed to a later date or is altered in any way, the blast shall be rescheduled and an updated blast-specific blasting plan shall be submitted not less than 48 hours prior to commencing the drilling of the pattern for the updated blast

~~plan [the rescheduled blast]~~. At a minimum the blast-specific blasting plan submittal shall include the following information:

29. Page 203, line 50 through Page 204, line 4 is revised to read as follows:

As part of the general blasting plan, the Contractor shall provide a monitoring plan to the Engineer which details how the typical blast will be monitored and how the monitoring results will be reported for each blast. The Contractor shall monitor each blast with an approved blasting seismograph, as defined under ~~[the]~~ **Attenuation Study** in this subsection, and with multiple transducers placed on that portion of each of the following which is both within 250 feet of and closest to the blast location:

30. On Page 205, lines 1 through 5 are revised to read as follows:

Prior to blasting operations within 250 feet of any structure, the Contractor shall demonstrate the adequacy of the proposed blast-specific blasting plan by drilling, blasting, and excavating short test sections, up to 100-feet in length, to determine which combination of method, hole spacing, and charge per delay works best.

31. On Page 205, lines 7 through 10 are revised to read as follows:

The Contractor shall adjust the blast design (i.e., pattern, loading, timing, fly rock control measures, etc.) based on the results (actual vs. predicted PPV) of the previous blast, then provide the modified blast-specific blasting plan to the Engineer for approval before the next subsequent blast.

32. On Page 210, lines 44 through 50 are deleted and replaced with the following:

Blasting operations shall comply with WAC-296-52. When blasting near buildings, structures, or utilities which may be subject to damage from blasting the Contractor shall control the blasting operation by the use of properly designed delay sequences and allowable charge weights per delay so that the criteria set forth in WAC 296-52-67065 (Vibration and Damage Control) are not exceeded. The Contractor shall provide notification, in writing, of the specific location and intended time of the blasting to local jurisdictions, utilities, and adjacent property owners at least twenty-four hours in advance of the blasting. The Contractor shall comply with all requirements of the **Blasting Monitoring Plan and Blast Monitoring Minimum Requirements and Controlled Blasting Near Soil Nail Walls and Fiber Reinforced Shotcrete** subsections of Special Provision **ROADWAY EXCAVATION AND EMBANKMENT** for blasting operations within 250 feet of concrete structures and installed shotcrete, respectively.

33. On Page 211, lines 14 through 25 are revised to read as follows:

B. The ~~[If required by the Engineer, the]~~ Contractor shall retain the services of a recognized blasting consultant to assist in the blast

design. The blasting consultant shall be on-site during the drilling of all blast holes, during the loading for each blast, and during each blast. The blasting consultant shall be an expert in the field of drilling and blasting who derives his primary source of income from providing specialized blasting and/or blasting consulting services. The blasting consultant shall not be an employee of the Contractor, explosive manufacturer, or explosive distributor. The Contractor shall submit a resume of the credentials of the proposed blasting consultant for approval by the Engineer. The resume shall include a list of at least 5 slope stabilization projects in steep mountainous terrain over 5 years on which the blasting consultant has worked. The list shall contain a description of the project, details of the blast plans, and names of the project owners with sufficient knowledge to verify the submitted information.

34. On Page 272, the following is added after line 14:

Anti-seize compound shall be one of the following or an approved equal:

Loctite 242 Threadlocker
Henkel North America
1001 Trout Brook Crossing
Rocky Hill, CT 06067
800-562-8483

Never-Seez Regular Grade Anti-Seize
Industrial Supply Group
4702 Ecton Drive
Marietta, GA 30066
770-591-5922

Solution 1800 Anti-Seize
MRO Solutions L.L.C.
5645 W. Howard St.
Niles, IL 60714
877-676-2481

35. On page 273 line 1 is deleted.

36. On page 273 line 3 is deleted and replaced with the following:

(*****)

37. On page 273 lines 9 through 34 are deleted.

38. On Page 290, lines 18 through 42 are deleted.

39. On page 307 the following is added after line 11:

(*****)

Structural carbon steel contains the following approximate steel quantities:

Bridge	Quantity
<u>Lake Keechelus Snowshed</u>	
Portal Headwall Roof	28,000 LB.
Pier 2 Platform	6,500 LB.
Platform Grating	190 S.F.

40. On Page 359, lines 20 through 31 are revised to read as follows:

- a. Precast Barrier Test Panel
The test panel for the precast conc. barrier - type 42 in. 2 sided f-shape shall have a minimum horizontal length of 25'-0" and constructed as shown in the Plans. The sample panel shall conform to the requirements of Section 6-10.3 ~~[be cast of Class 4000 concrete]~~ and shall have a Class 2 finish.

41. On Page 370, lines 25 through 28 are revised to read as follows:

The geomembrane shall be placed along Pier 1 from the temporary and permanent cut slopes to a 1.5 foot overlap of the footing ~~[the back of the Pier 1 Wall]~~ as shown in the Snowshed Gallery Outlet Structures Detail in the Drainage Details. The geomembrane shall slope a minimum of 1% from the cut slope to the back of the Pier 1 Wall.

42. On Page 388, lines 27 through 29 are revised to read as follows:

This drainage shall be maintained until Wall 3 is backfilled, the existing Snowshed is removed, and "Temporary Drainage – Snowshed, Wall 3" and drainage structures D3-11 and D3-12 are in place and receiving the hillside ditch drainage. All temporary drainage structures that are to be abandoned shall be abandoned in accordance with Special Provision DRAINAGE STRUCTURE ABANDON.

43. On Page 389, the following is added after line 4:

The lump sum Contract price for "Temporary Drainage – Snowshed, Wall 4", "Temporary Drainage – Snowshed, Wall 3", and "Temporary Drainage – Slide Curve Bridge, Wall 7" shall be full compensation for all costs of labor, materials, tools, equipment, transportation, supplies, and incidentals incurred by the Contractor in performing the Contract Work as specified, including all costs for resetting, adjusting, maintaining, and abandoning the drainage systems.

44. On Page 434, the following is added after line 5:

The Contractor has the option to precast the equipment hut. The concrete structural materials for the equipment hut shall conform to the requirements of Section 6-02.

Insulated metal access doors for the equipment hut shall be full flush 1 - 3/4" thick with faces constructed of 18 U.S. gauge cold rolled, leveled sheet steel. Faces shall have smooth, seamless, unbroken surfaces. Inner structural reinforcement shall be formed of 18 gauge cold rolled channels in a grid pattern, the grid double welded at all junction points and welded both vertically and horizontally to face sheets. The inner surfaces shall be coated with a corrosion proofing material. The door shall have a frame made of 10 gauge steel and shall have the locking mechanism and hinges recessed in the frame. The door shall be provided with a spring loaded knob with core lock capable of accepting a Best CX series core installed by others. Steel door jams shall be used on entire perimeter of doorway.

Crushed surfacing base course shall conform to Section 9.-03.9(3).

PVC floor drain 4 In. Diam. will be accepted by visual inspection by the Engineer.

PVC under drain pipe 4 In. Diam. shall conform to Section 9-05.2(6).

The metal grate for the floor drain will be accepted by visual inspection by the Engineer.

Reinforcing steel shall conform to the requirements of AASHTO M 31, Grade 60.

The 500 watt thermostatically controlled baseboard heater will be accepted by visual inspection by the Engineer.

45. Page 443, line 30 through Page 444, line 11 is deleted.

46. On Page 447, the following is added after line 33:

(***)**

ITS – Equipment Hut

The Contractor shall request, in writing, permission to precast the equipment hut if the Contractor chooses the option to precast rather than cast-in-place.

The Contractor shall submit shop drawings for approval. Shop drawings shall conform to the requirements of Section 6-02.3(28)A.

47. On Page 468, lines 12 through 16 are deleted and replaced with the following:

Night time average maintained horizontal light level shall be between 3.0 and 4.0 footcandles. Night time light level shall be in operation for the area described above until the ambient light level increases to 15 footcandles or more. The light levels shall remain at daytime levels until the ambient light level falls below 10 footcandles.

48. On Page 505, lines 38 through 51 are revised to read as follows:

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The Contractor or Subcontractor performing this work shall have installed Snow Nets for a minimum of 3-years and shall have been responsible for a total Snow Net length of at least 500 meters. Prior to the beginning of construction, the Contractor shall submit a list containing at least 5 projects on which the Contractor or Subcontractor has installed Snow Nets. The Contracting Agency may accept Flexible Debris Flow Fence and Flexible Rockfall Fence system project experience as equivalent to Snow Net project experience after reviewing project details provided in the Contractor Experience Submittal. If Flexible Debris Flow Fence or Flexible Rockfall Fence system project experience is being submitted as Snow Net project experience, the Contractor shall also include a description detailing the similarities between the submitted Flexible Debris Flow Fence or Flexible Rockfall Fence system project experience and the Snow Net system installation. A brief description and a reference shall be included for each project listed. The description shall include project location, and height and total length of installed nets. At a minimum, the reference shall include an individual's name, affiliation, and current phone number.

49. In Appendix A, on Page 1, the following is added after line 15:

072113 Board Insulation

50. In Appendix A, on Page 19, the following is added after line 8:

SECTION 072113 – BOARD INSULATION

Description

This work consists of furnishing and installing rigid board insulation at non-structural metal wall framing in heated and semi-heated spaces and insulation for the foam storage cabinets.

Manufacturers

The Contractor shall use one of the following materials or an approved equal:

Thermasheath-3 as manufactured by RMax.

ISOCAST R as manufactured by The Dow Chemical Company.

ENERGY SHIELD® Plus as manufactured by Industrial Insulation Sales, INC.

Physical Properties

The board insulation shall conform to the following:

Nominal overall density shall be 2.0 pounds per cubic foot.

Compressive strength shall be 20 psi.

Core flame spread shall be 75 or less.

Core smoke developed shall be less than 450.

Water vapor transmission shall be less than 0.3 perm.

Water absorption shall be less than 1% by volume.

Dimensional stability shall be less than 2% Linear Change.

Service temperatures shall be between -40 deg F and 250 deg F.

Construction Requirements

References

ASTM D1622 - Standard Test Methods for Apparent Density of Rigid Cellular Plastics.

ASTM D1621 - Standard Test Method for Compressive Properties of Rigid Cellular Plastics.

ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

ASTM E96/E96M-10 - Standard Test Methods for Water Vapor Transmission of Materials.

ASTM C591 - Standard Specification for Unfaced Preformed Rigid Cellular Polyisocyanurate Thermal Insulation.

ASTM C1303 - Standard Test Method for Predicting Long-Term Thermal Resistance of Closed-Cell Foam Insulation.

NFPA 255 - Standard Method of Test of Surface Burning Characteristics of Building Materials.

UL 723 - Tests for Surface Burning Characteristics of Building Materials.

Submittals

The Contractor shall submit the manufacturer's specifications and installation instructions for each product specified.

Substitutions

The Contractor will be allowed substitution based on the following:

1. The Engineer is the final authority with respect to acceptability of substitutions.
2. Substitutions may be considered when a product becomes unavailable through no fault of the Contractor.

3. Document each request with complete data substantiating compliance of proposed substitution with the Plans and Special Provisions.
4. A request constitutes a representation that the Contractor:
 - a. Has investigated proposed product and determined that it meets or exceeds quality level of specified product.
 - b. Shall provide same warranty for substitution as for specified product.
 - c. Shall coordinate installation and make changes to other work that may be required for the work to be complete with no additional cost to the Contracting Agency.
 - d. Waives claims for additional costs or time extension that may subsequently become apparent.
 - e. Shall provide shop drawings of proposed substitution for review by the Engineer.

The Contractor shall submit three copies of substitution request for consideration, one substitution per request.

The Contractor shall submit shop drawings, product data and certified test results attesting to the proposed product equivalence.

The Engineer will determine acceptability of proposed substitution and will notify the Contractor, in writing, of the decision to accept or reject request.

Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals, without separate written request, or when acceptance will require revision to the Plans or Special Provisions.

Whenever a product is specified by patent or proprietary name or by name of manufacturer, such specification establishes standard of quality in that particular field of manufacture.

Quality

Insulation installed in concealed locations surface burning characteristics shall conform to Foam Plastic Insulation with a maximum 75/450 flame spread/smoke developed index when tested in accordance with ASTM E84.

Protection

The Contractor shall not permit damage to insulation prior to covering.

Installation

The Contractor shall install boards between non structural metal framing. The Contractor shall cut and fit insulation tight framing protrusions or interruptions to insulation plane. The Contractor shall install with manufacturer's recommended adhesive in foam and heater cabinets. The Contractor shall line and/or tape as required for a neat tight finish in cabinets. Exposed unfinished edges will not be allowed.

51. In Appendix A, on Page 19, line 51 is deleted and replaced with the following:

Substrate shall conform to Section 092916.

52. In Appendix A, on Page 25, lines 8 through 35 are deleted and replaced with the following:

Roof sheathing shall conform to Section 092816.

Felt Underlayment shall be 30 pound felt.

53. In Appendix A, on Page 26, the following is added after line 6:

The panels shall be 22 gauge and rated Class 90 when installed over metal decking.

54. In Appendix A, on Page 71, the following is added after line 12:

Material Storage Cabinet

55. In Appendix A, on Page 71, lines 13 through 17 are revised to read as follows:

Body panels shall be all welded body with double wall 18 gauge type 304 stainless steel and 1-1/2 inch insulating air space.

Doors shall be double walled type 304 stainless steel inner and outer panels [~~with 14 gauge steel outside and 18 gauge inside~~], lock securely, and open 180 degrees.

56. In Appendix A, on Page 71, the following is added after line 22:

Handles shall be stainless steel paddle handles.

57. In Appendix A, on Page 71, line 29 is deleted and replaced with the following:

The cabinet finish shall be #4 brushed type 304 stainless steel.

58. In Appendix A, on Page 71, lines 31 through 32 are revised to read as follows:

The dimensions [~~dimension~~] of the cabinet shall be 48 [43] inch minimum width, 34 inch minimum depth, and 72 [65] inch minimum height.

59. In Appendix A, on Page 71, the following is added after line 32:

Heater Cabinet

Body panels shall be all welded body with double wall 18 gauge type 304 stainless steel.

Doors shall be double walled type 304 stainless steel inner and outer panels, lock securely, and open 180 degrees.

Lock cylinder shall lock with two keys.

Latching shall be a three point latching system.

Hinges shall be heavy duty 4 inch welded hinges with smooth, radius edges.

Handles shall be stainless steel paddle handles.

The cabinet finish shall be #4 brushed type 304 stainless steel.

The dimensions of the cabinet shall be 26 inch minimum width, 18 inch minimum depth, and 39 inch minimum height.

60. In Appendix A, on Page 71, the following is added after line 33:

Miscellaneous

Board insulation shall be as specified in Section 072113.

61. In Appendix A, on Page 76, the following is added after line 31:

Hands-Free Horizontal/Vertical Lifeline:

Cable shall be ASTM A492, type 304 stainless steel with a 0.3125 inches minimum diameter cable and 9,127 lbs minimum breaking strength with permanently swedged cable ends.

A non-corrosive data plate stating Maximum Service Capacity of cable, Manufacturer's Name, Serial No., Manufacturing Date, rated load and other pertinent information shall be prominently displayed at cable system entry points.

Standard intermediate and end support brackets shall be stainless steel conforming ASTM A167, type 316, multi-position, with reinforcing end caps and suitable for installation at any height. The brackets shall be secured using 0.5 inch minimum diameter stainless steel fasteners.

End terminal hardware shall be type 304 stainless steel swaged termination at one end and type 304 stainless steel tensioner with shock absorber at other end.

Horizontal/Vertical Lanyard Cable Runner shall be stainless steel conforming to ASTM A167, type 316 with automatic runner bypass for continuous "hands-free" operation. The system shall ensure that the lanyard can be inserted or removed anywhere on cable; allows unrestricted horizontal movement; allows unrestricted vertical movement; locks immediately to the cable to arrest movement in the event of a fall.

62. In Appendix A, on Page 182, lines 38 through 40 are revised to read as follows:

Support installation shall conform to NECA 1 and NECA 101 for application of hangers and supports for electrical equipment and systems except if requirements in this Section are stricter. All bolted connections shall have double lock nuts for all installations above the roadway.

63. In Appendix A, on Page 206, the following is added after line 31:

Provide battery backup inside the lighting control panel to maintain control power to the processor in the event of a power outage.

64. In Appendix A, Page 213, line 23 through Page 214, line 5 is deleted and replaced with the following:

Surge Protection Devices (SPD)

Provide surge protection devices (SPD) where shown on the drawings. SPDs are used for the protection of all AC electrical circuits from the effects of lightning induced currents, substation switching transients and internally generated transients resulting from inductive and/or capacitive load switching.

The SPD shall be suitable for application in both category B and C environments as described in ANSI/IEEE C62.41- 2002.

The manufacturer/vendor shall furnish all of the necessary SPD products and related hardware (i.e. flush mounting kits, mounting brackets, etc.) as required for the installation of the SPD system suitable for the application.

Reference standards:

1. ANSI/UL 1449 (Underwriters Laboratories) Third Edition - Standard for Safety for Surge Protective Devices.
2. ANSI C84.1 (American National Standards Institute) - American National Standard for Electric Power Systems and Equipment - Voltage Ratings (60 Hertz).

3. IEEE C62.41.1 (Institute of Electrical and Electronics Engineers) - Guide on the Surge Environment in Low-Voltage (1000 V and Less) AC Power Circuits.
4. IEEE C62.41.2 (Institute of Electrical and Electronics Engineers) - Recommended Practice on Characterization of Surges in Low-Voltage (1000 V and Less) AC Power Circuits.
5. IEEE C62.45 (Institute of Electrical and Electronics Engineers) - IEEE Recommended Practice on Surge Testing for Equipment Connected to Low-Voltage (1000 V and Less) AC Power Circuits.
6. IEEE 142 (Institute of Electrical and Electronics Engineers) - IEEE Recommended Practice for Grounding of Industrial and Commercial Power Systems (Green Book).
7. IEEE 1100 (Institute of Electrical and Electronics Engineers) - IEEE Recommended Practice for Powering and Grounding Sensitive Electronic Equipment (Emerald Book).
8. ISO 9001 (International Organization for Standardization) Quality Systems – Quality Management System
9. MIL Standard 220 (Department of Defense) - Test Method Standard, Method of Insertion-loss Measurement.
10. NFPA 70 (National Fire Protection Association) - National Electrical Code.
11. UL 1283 (Underwriters Laboratories) - Standard for Safety for Electromagnetic Interference Filters.

Qualifications:

1. Manufacturer's SPDs shall have UL1449 Third Edition compliance & listing from Nationally Recognized Test Lab (NRTL) accepted by local authority having jurisdiction. Type 1 compliance required for SPD intended for installation before (or after) Main Service Disconnect or Type 2 compliance for installation after Main Service Disconnect. Provide published UL1449 Third Edition Nominal Discharge Current Rating and Voltage Protection Rating.
2. Manufacturer shall have local representation and distribution within 400 miles of the project location to provide technical, warranty claim, and installation support for the project.
3. Manufacturer/vendor must be capable of supplying SPD for project within 30 days of receipt of order for orders of 25 units and less for models submitted in response to this specification.

4. Manufacturers shall be certified to latest ISO 9001 standard and shall be registered for the design and manufacturing of SPD devices.
5. Manufacturer shall provide access to a readily available factory engineer for answering questions about this product.
6. Only firms regularly engaged in the manufacture of SPD products for category C locations (ANSI/IEEE C62.41.1-2002), and whose products have been providing satisfactory service for not less than five years, shall be considered. Manufacturer qualifications shall be provided as part of the submittal.
7. Single manufacturer shall be capable of providing all power system SPDs.

SPD design:

1. SPD shall be compatible with the electrical system voltage, current, system configuration and intended applications and shall be NRTL listed for such application.
2. Parallel design only with individual protection components:
 - a. Line to Ground and Line to Line for Delta and High Resistance Grounded systems.
 - b. Line to Ground, Line to Neutral and Neutral to Ground for Wye and Single Phase distribution systems.
3. Metal-Oxide Varistors (MOV) components shall be utilized as primary energy mitigation. Selenium cell, air gaps, gas tubes are not allowed.
4. Maximum continuous operating voltage (MCOV) of all components (based on ANSI C84.1 standard voltages), not less than 125% for 120/208 volt systems and 115% for other systems.
5. Short Circuit Current Ratings (SCCR) shall be suitable for location SPD is to be installed.
6. Visual indication of protection status on each phase, visible from the front of the equipment.
7. Protection Status:
 - a. As a minimum, Branch Panel, Sub-Panel and series installed (branch circuit) SPD shall include a passive circuit which allows the SPD to actively follow the

voltage waveform and provide a clamping envelope to limit low level IEEE C62.41 Category A ring waves (of either polarity) at all locations on the sine wave. This circuit shall also perform in the Neutral to Ground Mode.

- b. Complete, comprehensive installation instructions shall be provided for the SPD.

8. Enclosure:

- a. NEMA rated metal enclosure appropriate for environmental conditions and exposure at point of installation.
- b. Designed to allow connection of the SPD without sharp bends in the conductors.
- c. Metal flush kits for flush mount installations (external devices) on new and retrofit applications for panels. Kits shall include supports for fastening to structural members and shall include a face plate matching SPD finish. Retrofit kits shall be capable of being installed next to the panel after drywall has been installed without the need for patching or refinishing of the wall.

Minimum durability and performance requirements are described below in accordance with test procedures outlined in ANSI/IEEE C62.45 & UL1449 third edition. Test documentation shall be provided as part of the submittal package. Information shall be provided in a format which is easy to analyze and review. The following test data shall be submitted as manufacturer published literature:

1. Provide Peak Surge Current (Single Pulse Rated, 8/20 μ S, by mode, Amperes) with submittals document for each SPD proposed. For all electrical equipment located at Service Entrance or Category C locations, Surge current rating shall be a minimum of 160kA per phase / 80kA per mode for IEEE C62.41.1-2002 - Category C Low Exposure locations and 300kA per phase / 150kA per mode for IEEE C62.41.1-2002-Category C High Exposure locations or critical locations.
2. Provide surge current ratings for each applicable protection mode (L-L, L-N, L-G & N-G) with submittals.
3. Surge current rating shall be a minimum of 80kA per phase / 40kA per mode for branch panel models in low, medium and high exposure areas and for IEEE C62.41.1-2002 - Category B & C Panel and Sub-Panel Locations.

4. Provide surge current ratings for each applicable protection mode (L-L, L-N, L-G & N-G) with submittals.
5. For each SPD proposed, provide published durability test data utilizing the ANSI/IEEE C62.41-1991, Category C3, 20kV/10kA, 1.2 x 50 μ S - 8x20 μ S combination waveform for SPD durability tests with (as a minimum), the ANSI/IEEE C62.41-1991, Category C1, 6kV/3kA, 1.2 x 50 μ S - 8x20 μ S combination waveform used for pre and post test measurement of let through performance variation. Provide test data with submittals, including test setup information.
6. All SPD devices (including branch panel) shall withstand a minimum of 15,000 IEEE C3 20kV/10kA hits delivered at a rate not exceeding one pulse per minute without failure or degradation exceeding 5% using IEEE B3 6kV/3kA combination waveform for pre and post durability let through measurement evaluation. Lead length for testing and let through measurements shall be 6".
7. UL Third Edition Nominal Discharge Current Ratings shall be a minimum of 20kA per mode for SPDs to be installed at the Service Entrance (or where direct lightning strike potential exists on outdoor feeder or branch circuit conductors serving electrical equipment) and a minimum of 10kA per mode for all other locations.
8. Provide EMI/RFI Attenuation as per Mil Std-220. Attenuation 40dB at 100kHz.
9. Maximum SPD voltage let through values are provided in Table 1 and 2 below. Provide published performance test data for the test configurations and waveforms listed in tables with submittals.

Table 1 - Peak Voltage Let Through Voltage Table for ≥ 160 kA Units (at/ near Service Entrance locations)

*Peak Let Through Voltages (measured from zero reference) shall not exceed:

Voltage / Configuration	Test / IEEE Wave	L-N	L-G	L-L	N-G	Phase Angle
480/277 Wye - Grounded	C3 – 20 kV/10ka	1600	1850	2350	1700	90
480/277 Wye - Grounded	B3/C1 – 6 kV/3kA	1000	1075	1725	1075	90
480/277 Wye - Grounded	A1 – 2kV/67A	520	530	830	250	90
480/277 Wye - Grounded	A1 – 2kV/67A	85	155	115	110	180
480/277 Wye - Grounded	UL1449 SVR	800	800	1500	800	----
480/277 Wye - Grounded	UL1449 VPR	1000	1000	1800	1000	----
480 Delta	C3 – 20 kV/10ka	N/A	2400	2400	N/A	90
480 Delta	B3/C1 – 6 kV/3kA	N/A	1775	1750	N/A	90
480 Delta	A1 – 2kV/67A	N/A	1300	780	N/A	90
480 Delta	A1 – 2kV/67A	N/A	1200	100	N/A	180
480 Delta	UL1449 SVR	N/A	1500	1500	N/A	----
480 Delta	UL1449 VPR	N/A	1800	1800	N/A	----
120/208 Wye	C3 – 20 kV/10ka	1050	1225	1350	1150	90
120/208 Wye	B3/C1 – 6 kV/3kA	565	590	925	550	90
120/208 Wye	A1 – 2kV/67A	260	390	360	250	90
120/208 Wye	A1 – 2kV/67A	75	115	90	100	180
120/208 Wye	UL1449 SVR	400	400	800	400	-----
120/208 Wye	UL1449 VPR	600	700	900	600	-----
120/240 Split Phase	C3 – 20 kV/10ka	1050	1225	1350	1150	90
120/240 Split Phase	B3/C1 – 6 kV/3kA	565	590	925	550	90
120/240 Split Phase	A1 – 2kV/67A	260	390	360	250	90
120/240 Split Phase	A1 – 2kV/67A	75	115	90	100	180
120/240 Split Phase	UL1449 SVR	400	400	800	400	-----
120/240 Split Phase	UL1449 VPR	600	700	900	600	-----
*Testing shall be completed with a minimum of 6" of lead length outside of device enclosure and shall be measured from zero voltage crossing.						
Note: Category A1 Ringwave applicable for locations where Active Tracking units are to be installed, including 120/208 & 120/240 Branch Panels and protection for dedicated equipment loads (where noted).						

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Table 2 – Peak Limiting (Let Through) Voltage Table for ≥ 80 kA Units (Branch/Sub Panel, MCC, etc.)

*Peak Let Through Voltages (measured from zero reference) shall not exceed:

Voltage / Configuration			Test / IEEE Wave	L-N	L-G	L-L	N-G	Phase Angle
480/277	Wye	-	C3 – 20 kV/10ka	1590	1850	2325	1650	90
480/277	Wye	-	B3/C1 – 6 kV/3kA	1050	1070	1750	970	90
480/277	Wye	-	A1 – 2kV/67A	490	530	830	270	90
480/277	Wye	-	A1 – 2kV/67A	100	150	150	100	180
480/277	Wye	-	UL1449 SVR	800	800	1500	800	----
480/277	Wye	-	UL1449 VPR	1000	1000	1800	1000	----
480 Delta			C3 – 20 kV/10ka	N/A	2450	2400	N/A	90
480 Delta			B3/C1 – 6 kV/3kA	N/A	1760	1720	N/A	90
480 Delta			A1 – 2kV/67A	N/A	1300	780	N/A	90
480 Delta			A1 – 2kV/67A	N/A	1100	75	N/A	180
480 Delta			UL1449 SVR	N/A	1500	1500	N/A	----
480 Delta			UL1449 VPR	N/A	1800	1800	N/A	----
120/208 Wye			C3 – 20 kV/10ka	1050	1225	1350	1150	90
120/208 Wye			B3/C1 – 6 kV/3kA	560	585	920	540	90
120/208 Wye			A1 – 2kV/67A	260	400	370	250	90
120/208 Wye			A1 – 2kV/67A	75	100	75	75	180
120/208 Wye			UL1449 SVR	400	400	800	400	-----
120/208 Wye			UL1449 VPR	600	700	900	600	-----
120/240 Split Phase			C3 – 20 kV/10ka	1050	1225	1350	1150	90
120/240 Split Phase			B3/C1 – 6 kV/3kA	560	585	920	540	90
120/240 Split Phase			A1 – 2kV/67A	260	400	370	250	90
120/240 Split Phase			A1 – 2kV/67A	75	100	75	75	180
120/240 Split Phase			UL1449 SVR	400	400	800	400	-----
120/240 Split Phase			UL1449 VPR	600	700	900	600	-----
*Testing shall be completed with a minimum of 6" of lead length outside of device enclosure and shall be measured from zero voltage crossing.								
Note: Category A1 Ringwave applicable for locations where Active Tracking units are to be installed, including 120/208 & 120/240 Branch Panels and protection for dedicated equipment loads (where noted). Please note the phase angle is 90 degrees and measurement is positive peak voltage measured from zero reference. Measurements at 180 degrees will show significantly lower let through voltages (sine wave peak voltage is zero at 180 degrees).								

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65. In Appendix A, on Page 255, lines 19 through 20 are revised to read as follows:

This work consists of furnishing and installing general building lighting, including specialty and exterior lighting. This section includes the tunnel lighting inside the snowshed.

66. In Appendix A, on Page 255, the following is added after line 44:

Tunnel lighting inside the snowshed shall have symmetrical light distribution.

Plans

1. Plan sheets 1, 2, 4, 8, 9, 12, 16, 17, 20, 21, 24, 28, 29, 32, 33, 35, 40 through 43, 61, 66, 89, 90, 92, 105, 115, 160, 176, 177, 179, 209, 210, 213, 214, 216, 222 through 227, 311 through 323, 325 through 335, 338, 346 through 351, 353, 355, 356, 360, 365, 366, 368, 370, 378, 395A, 396 through 404, 406 through 409, 412, 415 through 417, 419 through 427, 430, 432, 433, 435, 438 through 440, 442, 443, 446 through 448, 454 through 458, 462 through 470, 472 through 474, 485, 487, 489, 512, 549, 550, 552, 557, 564, 676, 697, 700 through 703, 706 through 714, 720, 722, 724 through 729, 731, 734, 735, 737, 917, 926, 927, 929, 931, 932, 934, 939, 1037, 1064, 1065, 1100 through 1107, 1109, 1111, 1112, 1114, 1127, 1177, 1193, 1194, 1204, 1205, 1207, 1208, 1210, 1211, 1220 through 1222, 1229, 1272, 1277, 1281, 1283 through 1290, 1298 through 1300, 1307, 1315, 1316, 1318, 1320, 1321, 1323 through 1325, 1327, through 1329, 1331 through 1333, 1335, 1338 through 1347, 1349 through 1352, 1357, 1368, 1369, 1371 through 1374, 1377, 1378, 1380, 1382, 1384 through 1389, 1390 through 1393, 1402 through 1410, 1412, 1414, 1415, 1420, 1421, 1424, 1426, 1427, 1432, 1433, 1440, 1445, 1446, 1452, 1454, 1455, and 1461 are revised as shaded, outlined and noted on the attached sheets.
2. Plan sheets 108 through 113, 116 through 128, 130 through 159, 161 through 172, 205, 208, 211, 217 through 221, 336, 337, 352, 444, 445, 459, 460, 475 through 484, 697, 705, 717 through 719, 723, 951 through 954, 1000, 1001, 1024 through 1037, 1066A, 1095, 1099, 1192, 1195 through 1203, 1206, 1209, and 1212 through 1219 are replaced with the attached sheets.
3. Plan sheets 108A, 117A, 122A, 122B, 137A, 137B, 149A, 149B, 162A, 162B, 172A, 216A, 222A, 223A, 225A, 227A, 352A, 352B, 443A, 474A, 697A through 697E, 1064A through 1064C, 1116A, 1206A, 1208A through 1208C, 1223B, and 1424B are added to the Plans.
4. Plan sheets 129 and 486 are deleted from the Plans.
5. On plan sheet 343, the Structure Code No. 9, located at the top right of the plan sheet is deleted and replaced with Structure Code No. 11.

6. On plan sheet 375, in the MEDIA FILTER DRAIN details, MEDIAN SLOPE APPLICATION and GRAVEL UNDERDRAIN TRENCH APPLICATION, the station LE 1334+00 is deleted and replaced with the station LE 1329+18.
7. On plan sheet 382, in the SECTION A and SECTION B details, the reference to FINISHED GRADE (pointing to the bottom of the drainage structures) is deleted.
8. On plan sheet 488, in the CULVERT EXTENSION DETAIL chart, for ID TD11-14, the station CW 5155+80 is deleted and replaced with the station CE 5155+80.
9. On plan sheets 3, 178, 367, 551, 736, 928, 1108, and 1317 the reference to sheet 486 is deleted.
10. The Contractor is advised that permanent guardrail and barrier installations are shown on the QUANTITY TABULATION – PAVEMENT MARKING sheets and the PAVEMENT MARKING PLAN (sheet No.'s 520 through 535)

Proposal

1. On Page 2: Item No.'s 12, 13 and 16, the PLAN QUANTITY is revised.
2. On Page 4: Items No.'s 37, 38, 41, 42, 46 and 47, the PLAN QUANTITY is revised.
3. On Page 5: Item No. 56 and 60, the PLAN QUANTITY is revised.
4. On Page 10: Item No. 119, the PLAN QUANTITY is revised.
5. On Page 13: Item No. 166, the PLAN QUANTITY is revised.
6. On Page 15: Item No. 198, the PLAN QUANTITY is revised.
7. On Page 16: Item No.'s 204 and 205, the PLAN QUANTITY is revised.
8. On Page 17: Item No. 217, the PLAN QUANTITY is revised.
9. On Page 18: Item No. 231, the PLAN QUANTITY is revised.
10. On Page 19: Item No.'s 242, 244 and 245, the PLAN QUANTITY is revised.
11. On Page 20: Item No.'s 259 and 260, the PLAN QUANTITY is revised.
12. On Page 23: Item No.'s 297, 299 and 301, the PLAN QUANTITY is revised.
13. On Page 24: Item No. 310, the PLAN QUANTITY is revised.

14. On Page 29:

The new bid item No.'s 390 through 393 have been added.
The ALTERNATE BID A1 has been removed.

15. On Page 30:

The new bid Item No. 394 has been added.
The ALTERNATE BID A1 and A2 ITEM No.'s have been revised.

16. On Page 31, the ALTERNATE BID A2 ITEM No.'s have been revised.

Bidders are instructed to revise sheets 3, 178, 343, 367, 375, 382, 488, 551, 736, 928, 1108 and 1317 of the Plans as revised sheets have not been prepared for attachment to this addendum.

Bidders shall furnish the Secretary of Transportation with evidence of the receipt of this addendum. This addendum will be incorporated in the contract when awarded and when formally executed.

Don Whitehouse, P.E.
Regional Administrator

Attachment:

Sheets 1, 2, 4, 8, 9, 12, 16, 17, 20, 21, 24, 28, 29, 32, 33, 35, 40 through 43, 61, 66, 89, 90, 92, 105, 108, 108A, 109 through 113, 115 through 117, 117A, 118 through 122, 122A, 122B, 123 through 128, 130 through 137, 137A, 137B, 138 through 149, 149A, 149B, 150 through 162, 162A, 162B, 163 through 172, 172A, 176, 177, 179, 205, 208 through 211, 213, 214, 216, 216A, 217 through 222, 222A, 223, 223A, 224, 225, 225A, 226, 227, 227A, 311 through 323, 325 through 338, 346 through 352, 352A, 352B, 353, 355, 356, 360, 365, 366, 368, 370, 378, 395A, 396 through 404, 406 through 409, 412, 415 through 417, 419 through 427, 430, 432, 433, 435, 438 through 440, 442, 443, 443A, 444 through 448, 454 through 460, 462 through 470, 472 through 474, 474A, 475 through 485, 487, 489, 512, 549, 550, 552, 557, 564, 676, 697, 697A through 697E, 700 through 703, 705 through 714, 717 through 720, 722 through 729, 731, 734, 735, 737, 917, 926, 927, 929, 931, 932, 934, 939, 951 through 954, 1000, 1001, 1024 through 1037, 1064, 1064A through 1064C, 1065, 1066A, 1095, 1099, 1100 through 1107, 1109, 1111, 1112, 1114, 1116A, 1127, 1177, 1192, 1193 through 1206, 1206A, 1207, 1208, 1208A through 1208C, 1209 through 1222, 1223B, 1229, 1272, 1277, 1281, 1283 through 1290, 1298 through 1300, 1307, 1315, 1316, 1318, 1320, 1321, 1323 through 1325, 1327 through 1329, 1331 through 1333, 1335, 1338 through 1347, 1349 through 1352, 1357, 1368, 1369, 1371 through 1374, 1377, 1378, 1380, 1382, 1384 through 1389, 1390 through 1393, 1402 through 1410, 1412, 1414, 1415, 1420, 1421, 1424, 1424B, 1426 through 1427, 1432, 1433, 1440, 1445, 1446, 1452, 1454, 1455, and 1461 (REV. 5/4/11)

Pages 2, 4, 5, 10, 13, 15 through 20, 23, 24, and 29 through 31 of the Proposal (REV. 5/4/11)

ADDENDUM NO. 3

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SNOWSHED TO KEECHELUS DAM PHASE 1C -

REPLACE SNOWSHED AND ADD LANES

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